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Docket No.

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| In re Application of: Göra | n Lundberg, Olof Metlande | er, and Kurt Sch | nedin | |
| Application No. | Filing Date | Ex | aminer | Group Art Unit |
| 09/830,864 | August 23, 2001 | S. | C. Yao | 1733 |
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Docket No.: GROTH 3.3-023

(PATENT)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of: Lundberg et al.

Application No.: 09/830,864

Group Art Unit: 1733

Filed: August 23, 2001

Examiner: S. C. Yao

For: METHOD AND ARRANGEMENT FOR THE

CONTINUOUS PRODUCTION OF

LIGNOCELLULOSE-CONTAINING BOARDS

APPEAL BRIEF

MS Appeal Brief - Patents Commissioner for Patents P.O. Box 1450 Alexandria, VA 22313-1450

Dear Sir:

Applicants hereby file this brief on Appeal from the final rejection of claims 7, 9, 10 and 12, mailed July 15, 2004, and in response to the Advisory Action mailed December 2, 2004.

REAL PARTY(IES) IN INTEREST

The real party in interest is Valmet Fibertech AB of Sundsvall, Sweden, the assignee of the above-referenced application.

RELATED APPEALS AND INTERFERENCES

To the best of Applicants' current knowledge, there are no related appeals or interferences pending before the U. S. Patent and Trademark Office regarding this United States patent application.

STATUS OF CLAIMS

Claims 1-6, 8, 11, 13 and 14 have been canceled from the present application. Claims 7, 9, 10 and 12 are pending in the present application. Claims 7, 9, 10 and 12 stand rejected and are the subject of this appeal. Applicants attach a clean copy of the claims hereto as Appendix A.

STATUS OF AMENDMENTS

After receiving the Final Office Action mailed July 15, 2004, Applicants filed an Amendment After Final Rejection under 37 C.F.R. § 1.116. In the Advisory Action mailed December 2, 2004, the Examiner indicated that the amendment was entered.

SUMMARY OF CLAIMED SUBJECT MATTER

The invention as set forth in claims 7, 9 and 10 is directed to a method for producing lignocellulosic boards from a mat of lignocellusic material. The mat of lignocellulosic material is compressed in a steam injection press to inject steam into the lignocellulosic boards and generate steam and

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These gaseous emissions gaseous emissions therein. (VOC) and other various volatile organic materials noxious be quite problematic in the work components, that can In any event, the process does include capturing environment. gaseous emissions, and supplying the steam and independent of the steam to the steam injection press and the mat, thereby preventing condensation of the steam, emissions, and any leakage of air from the surroundings. steam and gaseous emissions are transported to a combustion plant and the lignocellulosic boards are passed to an afterconditioning unit which generates a stream of suction air. stream of suction air is heated to a temperature greater than and the stream of heated suction air is supplying the hot air to the steam injection press.

The invention as set forth in claim 12 is directed to apparatus for producing lignocellulosic boards from a mat of lignocellulosic material comprising a steam injection press for compressing the mat to form the lignocellulosic boards produce steam and gaseous emissions therefrom, a suction member for capturing the steam and gaseous emissions and a hot air unit for supplying hot air to the steam injection press whereby condensation of the steam, the gaseous emissions and any leakage The apparatus includes air from the surroundings is prevented. said steam and means for transporting transport emissions to a combustion plant and an after-conditioning unit for subsequently conditioning the lignocellulosic boards and generating a stream of suction air, a heater for heating the stream of suction air, and supply means for supplying the heated stream of suction air to the hot air unit.

GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

- A. Whether claims 7, 10 and 12 are unpatentable under 35 U.S.C. 103(a) as being obvious over Tilby (U.S. Patent No. 5,284,546) in view of Tisch (U.S. Patent No. 5,433,905) or Eriksson et al. (U.S. Patent No. 5,932,156), Fischer et al. (U.S. Patent No. 5,063,010) and Walsh (U.S. Patent No. 5,344,484).
- Whether claim 9 is unpatentable under 35 U.S.C. 103(a) В. obvious over Tilby (U.S. Patent No. being as 5,284,546) in view of Tisch (U.S. Patent No. Eriksson et al. (U.S. Patent No. 5,433,905) or5,932,156), Fischer et al. (U.S. Patent No. 5,063,010) and Walsh (U.S. Patent No. 5,344,484) and further in view of the Admitted Prior Art wherein Applicants state that a well known problem with prior manufacturing technology is that gases are generated in the press during the compression process.

ARGUMENT

The Examiner has rejected claims 7, 10 and 12 under 35 U.S.C. 103(a) as being unpatentable over Tilby (U.S. Patent No. 5,284,546) in view of Tisch (U.S. Patent No. 5,433,905) Eriksson et al. (U.S. Patent No. 5,932,156), Fischer et al. (U.S. Patent No. 5,063,010) and Walsh Patent No. To establish a prima facie case of obviousness 5,344,484). under § 103, the references relied upon for rejection must suggest the entirety of the claimed invention, and hence, "the prior art reference (or references when combined) must teach or suggest all the claim limitations." M.P.E.P. § 2143.

Tilby, Tisch or Eriksson, Fischer and Walsh in combination do not make out a prima facie case of obviousness

with respect to claims 7 and 10 because these references, even if taken in combination, do not teach or suggest at least the recitations that the captured steam and gaseous emissions are transported to a combustion plant, and that the lignocellulosic boards produced are passed to an after-conditioning unit which suction air which is heated to a stream of temperature greater than 100°C and used for supplying the hot air to the steam injection press. Accordingly, these references do not teach the invention as a whole. Likewise, claim 12 requires that the claimed apparatus include means for transporting the captured steam and gaseous emissions to a combustion plant and include an after conditioning unit for subsequently conditioning the lignocellulosic boards produced and generating a stream of suction air, a heater for heating the stream of suction air, and supply means for supplying the heated stream of suction air to the hot air unit.

The present invention overcomes the well-known problem of the prior art technology that gases are generated in a press during the compression process, which takes place at Long time exposure to these gases, which consist temperatures. different volatile vapor, steam, or dissolved from wood and glue, referred to as Volatile Organic and gaseous phenol from wood, qlue, Compounds (VOC) results in irritation, and are harmful to personal health when present in sufficiently high concentrations. Containment and/or purification of press gases has necessitated the installation of complicated and expensive equipment in connection with the majority of plants in which lignocellulosic sheets and boards Thus, the invention of claims 7, 9, 10 and 12 are produced. provides a novel method and apparatus for making lignocellulosic efficient heat economy and more that results in boards prevention of harmful gaseous emissions.

The Examiner alleges that Tilby discloses a process of

making a lignocellulosic board that includes the steps feeding a mat comprising binder impregnated fibers into a belt press, compressing the mat in the belt press, blowing a stream of hot air into the mat to cure the binder, and moving and further hearing the hot air stream in a conduit to a receiving end opening of the conduit using supplemental blowers Tilby is directed to a method and apparatus for making structural panel from the rinds of sugarcane and similar woody The method includes providing a collection of straight rind fiber bundles strands, coating them with binder, depositing coated strands in a loose pile with the strands randomly oriented in substantially parallel planes, pressing the pile to a final thickness, and curing to interconnect each strand with Tilby does not even disclose a method for producing lignocellulosic boards from a mat of lignocellulosic material. Moreover, Tilby does not teach several other elements of claims 7, 10 and 12. The Examiner, in fact, admits that Tilby does not teach injecting steam to preheat a mat in a belt press; that the captured steam and gaseous emissions are transported to a combustion plant; and that the lignocellulosic boards produced are passed to an after-conditioning unit which generates a stream of suction air which is heated to a temperature greater than 100°C and used for supplying the hot air to the steam injection press.

The Examiner alleges that it would have been obvious to inject steam to pre-heat a mat in a belt press taught by Tilby because it is a common practice in the art of making fiber boards to steam pre-heat a mat in a belt press before the mat is press-cured, as exemplified in the teachings of Tisch or Eriksson. Tisch discloses a process for the production of particulate board from a matrix of flakes or particles mixed with a cementitious material including the steps of continuously feeding the matrix into a press, applying at least one of steam

and gas or gases to the matrix to cure the matrix to form the particulate board, and removing steam and gas or gases therefrom by vacuum assistance.

Eriksson discloses a method for the continuous production compressed board from lignocellulosic fibrous materials of drying, gluing and forming including the steps lignocellulosic material into a mat, and compressing the mat in presence of steam. steam is applied through a The compression roller. Fischer is directed to a method for making fiberboard comprising the steps of forming a mixture of a binder having a relatively low moisture particles depositing the mixture as a mat on a movable substrate, preheating the mat with steam to raise its temperature and to increase its moisture content to a relatively high moisture content. Walsh relates to a method of manufacturing isocyanate bonded wood composite.

The Examiner has not pointed to any teaching, suggestion or motivation in any of the references to combine the teachings of Tilby, Tisch, Erikkson and Walsh, which are all directed to different methods of making particle boards from different starting materials. In each instance of combining references, the Examiner merely states that the references can be combined because they relate to the general industry of making particleboard, ignoring the fact that there are several distinct processes for making particleboard which use complicated and varied equipment.

Indeed, in contrast to the process of *Eriksson*, wherein a compression roller is used to compress the mat in the presence of steam, in the plant used by the present invention, steam is delivered and injected into the mat through wires. Because this process takes place between two gas-permeable wires, the steam and the gases departing with the steam are able to leave the board across its entire width, and are captured before being

able to escape into the atmosphere. Clearly, this is distinct from the process *Erikkson*, as well as *Tilby*, *Tisch* and *Walsh*, which do not even teach that a mat can be compressed in the presence of steam. Furthermore, none of these references provide any disclosure with regard to capturing the gaseous emissions.

Likewise, the process disclosed in Fischer, which is the only reference that teaches preheating a mat with steam, does not include adding hot air to the mat as a separate step so as to prevent condensation, as recited in independent claim 7 of the present invention. Additionally, Fischer does not disclose that the hot air comes from a hot air unit, as distinguished from the steam injection press, as recited in independent claim 12 of the present application. Indeed, Fischer only discloses the injection of whatever air may be inherently included with the steam, i.e., a steam/air mix. Moreover, Fischer uses condensate to form part of the mixture that forms the board. is distinguishable in that it present invention The substantially avoids condensate forming in the first place, by the discrete step of adding hot air.

Moreover, even if a person of ordinary skill in the art was motivated to combine the references, the claimed invention would not have been produced. Several claim elements are not taught by any of the references cited. In addition to the above, none of these references cited by the Examiner disclose that the steam and gaseous emissions are transported to a combustion plant. Instead, the Examiner asserts that it is common practice in the art to incinerate polluting gases during a manufacturing process. First, the Examiner has not pointed to any teaching or suggestion to combine a method of making lignocellulosic board and transporting the steam and gaseous emissions produced by such a method. Second, even if incinerating polluting gases is common practice during a manufacturing process, the claimed

invention is not rendered obvious because there is no teaching, suggestion or motivation in any of the references to incinerate in connection with method polluting qases a lignocellulosic boards. Additionally, neither Tilby, Tisch. Fischer, Erikkson or Walsh teach supplying hot air independent of the steam to the steam injection press and to the mat, as required by the claims, nor do any of these references disclose a hot air unit for supplying the hot air to prevent condensation of steam and/or emissions.

In view of the above, Applicant respectfully requests that this rejection be reversed.

Claim 9 stands rejected under 35 U.S.C. 103(a) as being obvious over *Tilby* in view of *Tisch* or *Eriksson*, *Fischer* and *Walsh* and further in view of the alleged Admitted Prior Art wherein Applicants state that a well known problem with prior art manufacturing technology is that gases are generated in the press during the compression process.

Claim 9 depends from claim 7, therefore, it includes all of the elements of claim 7. Since the alleged Admitted Prior art does not teach the elements missing above, claim 9 is not rendered obvious by the references cited by the Examiner, for at least the reasons discussed above.

Furthermore, Applicants respectfully disagree with the Examiner's characterization of the alleged "Admitted Prior Art." Applicants point out that a well known problem with prior art manufacturing technology is that gases are generated in the press during the compression process. These prior art methods require installation of complicated and expensive equipment, as stated by Applicants. Applicants have provided a method and apparatus to solve the problems of the prior art without the need to install expensive equipment which is disclosed by Applicants in the section of the specification entitled Summary Of The Invention, and claimed by the present application. There

is nothing in the section of the specification entitled Background Of The Invention that provides a teaching, suggestion or motivation, based on the prior art manufacturing technology, to transport the steam and gaseous emissions produced by a method of producing lignocellulosic boards to a combustion plant.

Therefore, there is no combination of the cited references that would render the invention of claim 9 obvious. Accordingly, Applicants respectfully request that this rejection be reversed.

CONCLUSION

For the reasons set forth above, Applicant respectfully submits that this honorable Board should reverse all rejections on appeal, and issue a Notice of Allowance.

Dated: March 18, 2005

Respectfully submitted,

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APPENDIX A - CLAIMS

A copy of the claims on appeal is set forth below.

- A method for producing lignocellulosic boards from a mat of lignocellusic material comprising compressing said mat in to inject steam into said injection press steam lignocellulosic boards and generate steam and gaseous emissions therein, capturing said steam and gaseous emissions, supplying hot air independent of said steam to said steam injection press and to said mat, thereby preventing condensation of said steam, said gaseous emissions, and any leakage of air from the surroundings, wherein said steam and gaseous emissions are transported to a combustion plant and said lignocellulosic boards are passed to an after-conditioning unit which generates a stream of suction air, said stream of suction air is heated to a temperature greater than 100°C, and said stream of heated suction air is used for said supplying of said hot air to said steam injection press.
- 9. The method of claim 7 wherein said combustion plant has a predetermined required amount of combustion air, and including supplying said hot air and any of said leakage air to said steam injection press in an amount which is not greater than said predetermined required amount.
- 10. The method of claim 7 wherein said supplying of said hot air to said steam injection press includes supplying said hot air to a curing zone in said steam injection press at a temperature of greater than 100°C.
- 12. Apparatus for producing lignocellulosic boards from a mat of lignocellulosic material comprising a steam injection press for injecting steam into said mat and compressing said mat to form said lignocellulosic boards and generating steam and

gaseous emissions therefrom, a suction member for capturing said steam and gaseous emissions, and a hot air unit for supplying hot air to said steam injection press and to said mat, thereby preventing condensation of said steam, said gaseous emissions, and any leakage air from the surroundings, wherein said apparatus includes transport means for transporting said steam and gaseous emissions to a combustion plant and wherein said apparatus includes an after-conditioning unit for subsequently conditioning said lignocellulosic boards and generating a stream of suction air, a heater for heating said stream of suction air, and supply means for supplying said heated stream of suction air to said hot air unit.

APPENDIX B - EVIDENCE

Appellant has not relied upon any evidence in this appeal.

APPENDIX C - RELATED PROCEEDINGS

There are no related proceedings pending before the U. S. Patent and Trademark Office regarding this United States patent application.

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